COMPUTER SCIENCE 3753
Assignment #1

Points: 40 **Weight**: 2%
Due: Friday, Sept. 7, 2018 at 11:55 pm in BlackBoard
Note: Late assignment will not be accepted without instructor's pre–approval.

Hand in a zipfile **yourNmae-hmwk01.zip** that contains one Jupyter notebook with appropriate code cell and markdown (comment) cells, python scripts, and data files that are needed to solve the following questions.
For each of following questions, the Jupyter notebook should contain one or more code cell that either directly solves the question or runs a python script file to solve the question. For this homework, you must use only the basic Python (that is do not use scipy, numpy, or pandas package). You need to demonstrate your solutions with several test examples.
This homework must be completed individually.

1. [10] Cumulative sum of a list [a, b, c, ...] is defined as [a, a+b, a+b+c, ...]. Write a function cumulative_sum to compute cumulative sum of a list. Does your implementation work for a list of strings?

```
cumulative_sum([1, 2, 3, 4])
Out[]: [1, 3, 6, 10]
cumulative_sum([4, 3, 2, 1]
Out[]: [4, 7, 9, 10]
```

2. [10] Write a function lensort to sort a list of strings based on length.

```
lensort(['python', 'perl', 'java', 'c', 'haskell', 'ruby'])
Out[]: ['c', 'perl', 'java', 'ruby', 'python', 'haskell']
```

3. [10] Write a function unique that takes a list of strings and an optional key function as arguments and use the return value of the key function to check for uniqueness.

```
unique(["python", "java", "Python", "Java"], key=str.lower)
Out[]: ["python", "java"]
```

4. [10] Write a script wordwrap.py that takes filename and width as arguments and wraps the lines longer than the given width, but breaks the line only at the word boundaries. You should print the wrapped lines on screen, as shown in the following example.

```
%cat she.txt
I'm Sure That The Shells Are Seashore Shells.
So If She Sells Seashells On The Seashore,
The Shells That She Sells Are Seashells I'm Sure.
She Sells Seashells On The Seashore;
```

```
%run wordwrap.py she.txt 30
I'm Sure That The Shells Are
Seashore Shells.
So If She Sells Seashells On
The Seashore,
The Shells That She Sells Are
Seashells I'm Sure.
She Sells Seashells On The
Seashore;
```